

Table Grape Varieties *for* Cool Climates

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Introduction

About 3,000 tons of grapes were sold for fresh consumption in New York State in 1990 and 1991.

Grapes are cultivated in many home vineyards, and their value to the commercial industry has increased in the last decade. A wide range of flavors and appearances are available among the grapes that can be grown in the Northeast. The grapevine species that served as a parent to many of these grapes is known as *Vitis labrusca*. Fruit of *V. labrusca* have a pronounced fruity flavor, often referred to as an “American” flavor. Table grape varieties mature over an eight- to ten-week period, and several can be stored for later use. Some table grapes (e.g., Alden, Golden Muscat, New York Muscat, and Steuben) produce acceptable wines as well. The approximate order in which table grapes ripen is listed in Table 1. Information on relative resistance to diseases and cold injury is found in Table 2.

Generally, the varieties described here are adapted to cool climate growing regions. Some may be suitable for use in the Northeast, Midwest, and Mid-Atlantic growing regions of the United States.

The descriptions and information in Tables 1 and 2 may be used to help choose varieties suited to specific needs. Further information may be obtained from Cooperative Extension as well as from the references listed at the end of this publication.

Tolerance to winter cold temperatures is a complex phenomenon affected by health of the vine, crop load in the previous season, degree of vine acclimation to cold preceding exposure to a damage-inducing temperature, and other factors. Dormant buds may be damaged at one temperature and trunks at another temperature. The ratings of relative resistance to winter damage (Table 2) are generalized to reflect variation in responses by different varieties, although cultural practices and environmental conditions may reduce or increase a vine's resistance.

Several cultivars used primarily for wine or juice are also marketed as table grapes. These include Concord, Niagara, Catawba, Delaware, Diamond, Esprit, Fredonia, and Villard blanc. These varieties are described in a separate publication on wine and juice grape varieties (Reisch et al., 1993). In addition, the use of Concord for table grape production is described in detail by Zabadal et al. (1988).

Berry color is usually classified as white, red, blue, or black. White grapes usually range in color from light green to amber or light orange. Red varieties may vary from pink to deep red, and their coloration may differ with degree of ripeness and exposure of fruit to sunlight. The blue range includes types like New York Muscat, which have a reddish-blue color. Black grapes are typified by a dark, purplish-black color.

The weight per cluster and per berry, if available, is listed with each variety description. These data were collected from vines not treated with gibberellic acid or girdling, which are sometimes used on seedless varieties to improve berry size (Zabadal, 1986a, 1986b, 1992; Zabadal et al., 1988).

Seeded Dessert Grapes

Alden is a reddish-blue variety with very large clusters and large berries. Cluster thinning is necessary to increase cluster compactness and to permit uniform ripening. Berries have firm texture and an adherent skin with a mild labrusca and muscat flavor.

Cluster weight = 0.72 lb.

Berry weight = 4.8 g

Buffalo produces medium-sized, loose bunches of blue grapes with a fruity labrusca flavor. The vines are hardy and vigorous but susceptible to powdery mildew. Brittleness of cluster rachises can also be a problem.

Cluster weight = 0.32 lb.

Berry weight = 3.3 g

Edelweiss produces early-ripening fruit similar to that of its parent, Ontario, but the vine is much more winter hardy.

Golden Muscat produces very large clusters of large, oval, amber berries. The late-ripening fruit may be high in acid if not fully ripened; full maturity is not reached reliably in most New York locations.

Clusters are susceptible to bunch rot. The flavor is a rich combination of muscat and labrusca. The vine is hardy and productive.

Cluster weight = 0.89 lb.

Berry weight = 4.9 g

Kay Gray (Plant patent 4943), released from a private breeding program in Wisconsin operated by Elmer Swenson, is listed as one of the hardiest grapes grown in the upper Midwest. The golden fruit ripens very early, and the vine is quite disease resistant. Clusters and berries are small.

New York Muscat is a reddish-blue grape with a rich muscat-labrusca flavor. The vines are moderately vigorous and produce medium-sized, loosely filled clusters.

Cluster weight = 0.32 lb.

Berry weight = 2.9 g

Ontario is a full-flavored American white grape that ripens early. Vines are vigorous, productive, and easy to grow.

Price is a very early ripening Concord-type grape developed at the Virginia Polytechnic Institute and State University (VPI). Clusters are small to medium sized with large berries. The skin is thinner than on most labrusca-type grapes. Cluster weight = 0.28 lb.

Berry weight = 3.4 g

Seneca is a white grape with oval berries on medium-sized clusters. Berries have a firm texture, and the skin adheres to the flesh. The flavor is excellent, with pleasing labrusca overtones. The vine is susceptible to winter damage and powdery mildew.

Cluster weight = 0.37 lb.

Berry weight = 2.7 g

Sheridan produces large, compact clusters with large, black, Concord-type berries that ripen very late in the season. The vine is productive, vigorous, hardy, and easy to grow.

Cluster weight = 0.44 lb.

Berry weight = 4.0 g

Steuben is a bluish-black grape that produces long, tapering, compact clusters that are among the most attractive of all dessert cultivars. The flavor is sweet with a spicy tang. The vines are hardy, vigorous, productive, and easily grown by home gardeners. Cluster thinning is usually required.

Cluster weight = 0.45 lb.

Berry weight = 3.1 g

Swenson Red produces large bunches with large red berries that may turn reddish-blue if allowed to remain on the vine. Hardiness in Minnesota is marginal, but the variety easily withstands the winters in most parts of New York. The berries are medium to large, uneven in size, and firm in texture with an adherent skin. The flavor is mildly fruity and pleasant. Downy mildew can be severe. This variety was released jointly by the University of Minnesota and Elmer Swenson, Osceola, Wisconsin, in 1980.

Van Buren is an early-ripening, Concord-type grape. Vines are hardy but somewhat susceptible to downy mildew, especially at bloom. Clusters are somewhat smaller and more prone to cracking than clusters of Price, which ripens at about the same time.

Yates is a hardy, late-ripening red grape with juicy, sweet flesh, moderate labrusca flavor, and tough skin. Vines are very productive and may require moderate cluster thinning. The fruit keeps well in cold storage.

Cluster weight = 0.46 lb.

Berry weight = 3.4 g

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Seedless Grapes

Grape breeders have responded to consumer preferences for seedless grapes with the development of numerous improved varieties. The seedless trait in grapes was originally derived from cultivars of ancient origin such as Thompson Seedless and Black Monukka. Most seedless grapes suitable for the eastern United States are descended from crosses with these two cultivars. Because the trait originated in cultivars not suitable for surviving the cold temperatures of New York winters, many seedless varieties are not sufficiently winter hardy (Table 2), although they are much harder than their seedless parents. More recently named seedless cultivars (Canadice, Einset Seedless, Reliance, and Vanessa) represent a distinct improvement in cold hardiness. Breeding programs in New York, Ontario, Arkansas, and elsewhere continue to produce seedless selections with improved hardiness and quality. Promising selections from the New York program are available from the New York State Fruit Testing Cooperative Association, Geneva, N.Y. 14456.

The degree of seedlessness varies greatly among seedless grape varieties. Most seedless grapes have vestigial seed traces that range in size from very small to large and noticeable. Seed traces in berries of the same variety may vary greatly in size and in the hardness of their seed coats. Climate is also known to affect seed trace size. Occasionally the seed traces in some seedless grapes are large enough to be bothersome to consumers. Notes on seed remnant sizes are given for varieties in which problems exist.

Canadice is more winter hardy than most seedless grapes, although trunk injury has occurred on some sites. It produces medium clusters with small red berries that are similar to Delaware in flavor and appearance. With cordon training systems and careful management, Canadice clusters may average 0.5 lb., and the vines can be extremely productive. Fruit rot is a problem in wet years because the clusters are excessively compact. Cluster weight = 0.50 lb. Berry weight = 1.6 g

Concord Seedless, though similar in flavor and texture to Concord, is unrelated. The clusters and berries are much smaller than those of Concord. The fruit matures earlier, has high flavor, and makes excellent pies and preserves. Productivity is erratic, and it is not recommended for commercial planting. In warm years, the variety produces fully developed seeds.

Einset Seedless (Plant patent 6160) is a winter-hardy, red seedless grape with a unique, strawberrylike flavor. The medium-sized clusters produce bright red, ovoid berries that have good storage potential until the end of November. The clusters respond well to gibberellic acid or cane girdling to improve cluster compactness and berry size. The skin is slightly tough and adheres to the tender flesh. Cultural problems include susceptibility to fungal diseases (Table 2) and a seed remnant that is occasionally noticeable. Along with Vanessa, Einset Seedless probably has the most commercial promise of the red seedless varieties that can be grown successfully in New York. Cluster weight = 0.32 lb. Berry weight = 2.3 g

Himrod, produced from a cross between Ontario and Thompson Seedless, is the most successful table grape released from the Cornell University grape breeding program (1952). It produces large bunches of white seedless grapes with excellent, honeylike flavor and melting, juicy texture. The clusters are loosely filled, but cane girdling, gibberellic acid treatments, or thinning may be used to increase cluster compactness and improve berry size (Zabadal, 1992). The brittle rachis may break when handled, and the berries may shell in storage. The rachis is also subject to bunch stem necrosis, a poorly understood disorder that causes a shriveling of the cluster stem, often just before harvest. Despite these cultural defects, Himrod is currently the most commercially important of the seedless grapes grown in New York. Cluster weight = 0.36 lb. Berry weight = 2.1 g

Interlaken Seedless is an early-ripening seedless grape with a strong, American flavor. The clusters are medium sized and compact with small, white berries that ripen very early. This cultivar was derived from the same cross as Himrod. Birds often cause crop loss. Cluster weight = 0.27 lb. Berry weight = 1.5 g

Lakemont was also produced from the same cross as Himrod but has a milder flavor and more compact clusters of small to medium-sized berries. Cluster thinning prevents overcropping. Bunch rot is often a problem. Cluster weight = 0.48 lb. Berry weight = 1.7 g

Mars (Plant patent 5680), a release from the University of Arkansas, is a vigorous, blue seedless grape. The flavor is mildly labrusca, similar to Campbell's Early, and the berries are slipskin (having a tough skin that separates readily from the pulpy flesh). Clusters are medium sized, cylindrical, and well filled. Hardiness has been good at Geneva, New York, and the vines are resistant to several major diseases. Vines may bear fruit precociously, and production should be controlled on young vines to prevent delays in establishment. Mars has been recommended in Arkansas as a home garden grape with limited potential for commercial marketing.
Cluster weight = 0.40 lb.
Berry weight = 2.6 g in Arkansas

Reliance (Plant patent 5174), also from the University of Arkansas, produces large clusters of round, red, medium-sized berries. The skins are tender and the flesh is melting in texture, with a sweet labrusca flavor. Coloring may be poor in some years, and fruit often crack in wet seasons. Cold hardiness is among the highest of the seedless varieties.
Cluster weight = 0.62 lb.
Berry weight = 2.3 g in Arkansas

Remaily Seedless, developed by the New York State Agricultural Experiment Station, produces large clusters of oval seedless berries with firm texture. The flavor is neutral and mildly fruity. The clusters are very attractive in appearance but are subject to bronzing where exposed to sunlight, and the vines are only moderately hardy. This variety is recommended for back-yard gardeners interested in a neutral-flavored, European-type grape that is more winter hardy than commercially grown California seedless grapes.
Cluster weight = 0.68 lb.
Berry weight = 2.7 g

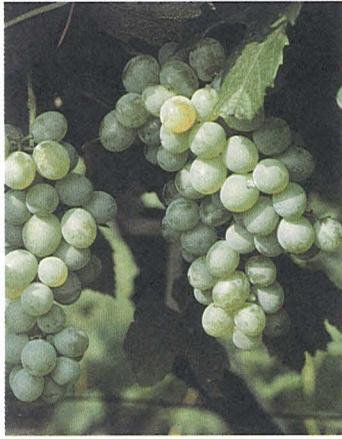
Saturn (Plant patent 6703), another University of Arkansas release, produces large, crisp berries on medium-large conical clusters. The berries are bright red with adherent skins and a mild flavor. Vines are precocious and moderately hardy at best and must be cluster thinned. In some years the seed remnants are very noticeable. Saturn has good storage potential and may be processed into an acceptable blending wine.
Cluster weight = 0.68 lb.
Berry weight = 3.0 g in Arkansas

Suffolk Red produces medium to large clusters of mild-flavored red berries. The clusters are loose but may be made more compact with the use of gibberellic acid or cane girdling. Winter damage is often a problem except on Long Island, where the variety is successfully cultured. Excessive vine vigor may occur following poor crops and winter bud damage.
Cluster weight = 0.32 lb.
Berry weight = 2.7 g

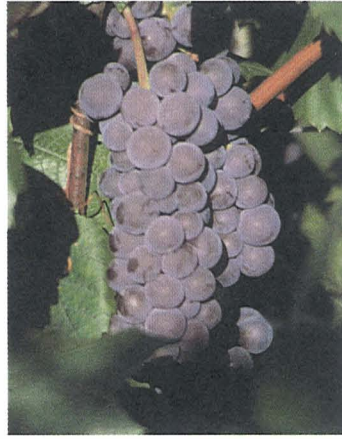
Vanessa was developed by HRIO, Canada, and is a red dessert grape of excellent quality. The vine is moderately vigorous and among the hardiest of seedless grapes. Grafting may be desirable on many sites to increase vine size (vines grafted on Teleki 5C at trials in Fredonia, New York, however, have shown poor fruit set with very small berries). The seed remnant is usually large and soft; when noticeable it is sometimes a cause for limited marketability. Berries are medium in size on medium, well-filled clusters. Storage potential is good. The flavor is mild and fruity, and berry texture is firm to crisp. The fruit quality is among the best of the red seedless types.

Venus, also from the University of Arkansas, is a vigorous and productive blue-black seedless grape. The medium-large clusters ripen early, producing large berries with mild labrusca flavors. In New York, the seed remnants are hard and noticeable, and fruit rot has been a problem at harvest. Fruit quality is only fair.
Cluster weight = 0.60 lb.
Berry weight = 2.9 g

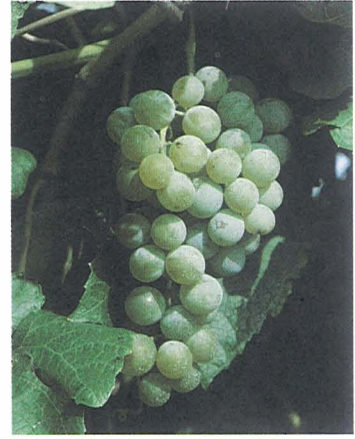
Figure 1. Leading table grape varieties.



Seneca, a 1933 release from the Cornell program, an early-ripening seeded grape with very sweet, oval berries.



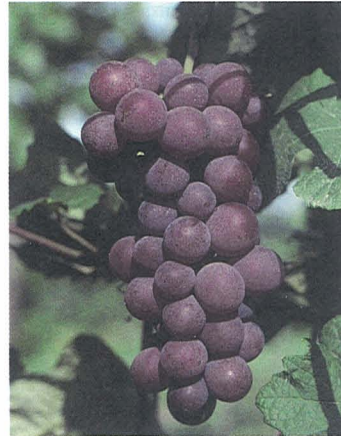
Swenson Red, a cold-hardy seeded grape developed by the University of Minnesota and Elmer Swenson, Osceola, Wisconsin.



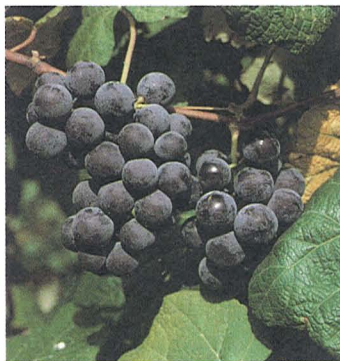
Himrod, the most successful seedless table grape to be released from the Cornell grape breeding program.



Einset Seedless, a 1985 Cornell introduction with good commercial potential.



Vanessa, a seedless grape from the Horticultural Research Institute, Ontario, Canada, with very firm texture and a mild fruity flavor.



Mars, an introduction from the University of Arkansas with good disease resistance and a mild labrusca flavor.



Alden, a 1952 Cornell release that produces attractive clusters with large, flavorful, firm berries on very productive vines.

Bird Damage

All varieties of grapes, particularly those that ripen early, may be seriously damaged or destroyed by birds. In small plantings it may be helpful to enclose the ripening grape clusters in vented paper bags to prevent damage. An alternative is to cover the vines completely with netting. In commercial plantings, netting, noisemakers, balloons, and ribbons that flash in the wind are commonly used controls.

Insect and Disease Damage

Any variety of grape may be subject to injury by insects or diseases. Table 2 provides relative ratings of disease resistance. Varieties that are resistant to several diseases may be grown with fewer fungicide applications. Several of the publications listed on pages 8 and 9 provide guidance on prudent practices to control insects and diseases. Researchers at the New York State Agricultural Experiment Station

continue to search for environmentally sound practices to control crop losses caused by insects and diseases. Areas of research include the development of disease-resistant varieties; identification of cultural practices that reduce disease incidence; expansion of biological control technology; and testing of chemical materials with minimal environmental impact.

Table 1. Dessert varieties with potential for the home vineyard and roadside market.

<i>Fruit Color</i>	<i>Very Early</i>	<i>Early</i>	<i>Midseason</i>	<i>Late Midseason</i>	<i>Late</i>
<i>White or amber</i>	Interlaken Seedless (E, S) Kay Gray (A)	Ontario (A) Himrod (E,S) Seneca (E) Edelweiss (A)	Niagara (A) Lakemont (E,S)	Remai Seedless (E,S)	Golden Muscat (A)
<i>Red</i>		Canadice (A,S) Reliance (A,S) Vanessa (E,S) Einset Seedless (E,S)	Saturn (E,S) Suffolk Red (E,S) Swenson Red (E)		Yates (A) Catawba (A)
<i>Blue, reddish-blue, or black</i>	Van Buren (A) Price (A) Venus (A,S)		Buffalo (A) Concord Seedless (A,S) New York Muscat (A) Mars (A,S)	Concord (A) Steuben (A) Alden (E)	Sheridan (A)

A = American Type, Slipskin

E = European Type in Fruit Texture, Nonslipskin

S = Seedless

Table 2. Relative susceptibility of table grape varieties to low-temperature injury, disease, and leaf damage resulting from sulfur applications.¹

Variety	WH	BR ²	DM	PM	BOT	PHOM	EU	CG	ALS	SULFUR
Alden	4	?	+	++	++	?	?	+	++	No
Buffalo	4	?	++	+++	++	?	?	+	?	No
Canadice	4	+++	+	+	++	?	?	++	++	No
Catawba	5	+++	+++	++	+	+++	+	+	+	No
Concord	5	+++	+	++	+	+++	+++	+	++	Yes
Concord Seedless	5	?	+	++	++	?	?	+	?	Yes
Edelweiss	5	?	+	++	++	?	?	+	++	?
Einset Seedless	4	+++	++	+++	+	?	?	+	++	?
Fredonia	5	+	+++	++	+	?	?	+	+	No
Golden Muscat	4	?	++	++	+++	?	?	+	?	No
Himrod	4	+++	+	++	+	?	?	+	+	No
Interlaken Seedless	3	+++	+	+++	++	?	?	+	+	No
Kay Gray	6	+	+	+	+	?	?	+	?	?
Lakemont	3	++	+	++	++	?	?	+	++	No
Mars	4	+	+	+	+	?	?	+	++	?
New York Muscat	4	?	+	+++	++	?	?	+	+	Yes
Ontario	4	?	+	++	++	?	?	+	++	No
Price	3	?	+	+	++	?	?	++	++	Yes
Reliance	4	+++	++	++	+++	?	?	+	+++	?
Remaily Seedless	3	+++	++	++	+	?	++	?	+	?
Saturn	2	++	++	+++	++	?	?	++	?	?
Seneca	3	+	+	+++	++	?	?	++	+++	Yes
Sheridan	5	?	+	++	+	?	?	+	?	?
Steuben	5	++	+	+	+	?	?	+	++	No
Suffolk Red	3	?	+	++	++	?	?	++	++	Yes
Swenson Red	5	?	+++	++	++	?	?	+	?	?
Van Buren	5	?	+++	+	+	?	?	+	?	Yes
Vanessa	4	+++	++	++	+	+	?	+	++	?
Venus	4	+	++	+	+++	?	?	+	+	?
Yates	4	++	+	++	+	?	?	+	?	No

NOTE: WH = Winter hardiness, 1 = too tender for all but a few select sites, 2 = tender, 3 = slightly hardy, may be grown on better sites, 4 = moderately hardy, 5 = hardy, and 6 = very hardy, worthy of trial on cold sites, BR = Black rot, DM = Downy mildew, PM = Powdery mildew, Bot = Botrytis, Phom = Phomopsis, Eu = Eutypa, CG = Crown gall, ALS = Angular leaf scorch, Sulfur = sensitivity to sulfur spray injury.

¹ Portions of this table were excerpted from the 1991 *Pest Management Recommendations for Grapes*, a Cornell Cooperative Extension Publication.

² Disease categories are rated as follows: + = slightly susceptible or sensitive, ++ = moderately susceptible or sensitive, +++ = highly susceptible or sensitive, ? = relative susceptibility or sensitivity not established.

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